

Induced Travel:

Recent Research Findings and Policy Implications

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Overview of Presentation

- Definition of Induced Travel
- Why is Induced Travel Important to the EPA?
- Critical Questions Regarding Induced Travel
- Summary of Recent Research Findings
- Policy Implications of Research on Induced Travel

Definition of Induced Travel

- Increases in total vehicle miles of travel on a roadway network resulting from increased roadway capacity, beyond that which results from:
 - (1) population growth
 - (2) changes in income
 - (3) other exogenous variables (demographic, etc.)

Induced travel reflects changes in consumer and business decisions

- Short run effects
 - changes in departure times (no VMT increase)
 - changes in route (may be net VMT increase)
 - changes in travel mode
 - changes in destinations (net additional VMT)
 - changes in number of trips (net VMT increase)
- Long run effects:
 - changes in household auto ownership
 - changes in residential location
 - employee changes in work location

- employer changes in business location
- changes in land development location

Induced Travel has become Increasingly Recognized

- TRB Special Report 245 (1995)
- DOT Condition and Performance Report (1998)
- DOT Expert Panel Review (1999)
- EPA Science Advisory Board Consultation (1999)

Why is Induced Travel

Important to the EPA?

Critical Questions regarding Induced Travel

- Do the empirical results of recent research support a conclusion that induced travel has historically occurred over US highway networks?
- How much induced travel has historically occurred and may reasonably be anticipated to occur?
- How well do transportation planning tools and processes account for the future occurrence of induced travel?

Do the empirical results of recent research support a conclusion that induced travel has historically occurred over US highway networks?

VMT Elasticities with respect to Travel Time

VMT Elasticities with respect to Lane Miles of Capacity

Summary of Recent Research Findings

- Consistent negative correlation between Travel Time and VMT
- Consistent positive correlation between Lane Miles of State Highways and VMT

- Fixed effects models allow consistent estimates of lane mile elasticities
- Statistical methods account for multicollinearity and reduce simultaneity bias
- Results are robust across many specifications

How much induced travel has occurred and may reasonably be anticipated to occur?

Estimated Percentage of Total VMT growth from Induced Travel

Not Accounting for Induced Travel Results in

Potential Underestimate of VMT forecasts

Do Travel Forecasts Fully Account for Induced Travel?

- TRB Special Report 245 (1995) concluded: "The four-step process, as it is conventionally applied, will generally understate the amount of induced travel"
- Goodwin (1996) found that U.K. travel models under-predicted traffic in the first year by 5.7% to 13.3%

How well do transportation planning tools and processes account for the future occurrence of induced travel?

Policy Implications of Research on Induced Travel

- How well does transportation planning account for the short term behaviors associated with induced travel?
- How well does transportation planning account for the long term behaviors associated with induced travel?

How well does transportation planning

account for the short term behaviors?

- “Good Practice” 4-Step Transportation Models include:
 - Feedback Loops and Iterative Processes
 - Appropriate Model Steps and Sub-models
- Enhancements and improvements to 4-Step Transportation Models could increase the degree to which we account for induced travel short term behaviors

How well does transportation planning account for the long term behaviors?

- Incorporation of Land Use Effects through Scenario Testing
 - Sketch Planning Tools may be helpful -- e.g. EPA’s Smart Growth Index
- Land Use Models may help account for long-term induced travel behaviors
 - EPA is promoting development, testing, and pilot projects integrating transportation and land use planning models